

Appendix A. Cruise Reports for Sampling Within the Carlsbad Hydrologic Unit

**Cruise Report for the
Surface Waters Ambient Monitoring Program (SWAMP)
of the
California Regional Water Quality Board San Diego Region (RWQCB9)**

Round 1 “Wet-Between Storm Events” Season Sample Collection (FY00-01 funded)

Sampling dates: 3/11-3/14 2002

**Written by: Sean Mundell
MPSL at Moss Landing Marine Laboratories
Updated: 3/19/02**

1.0 Introduction

This report describes the sampling activities and access issues for sampling stations for the SWAMP “wet-between storm events” sample collection effort for the California Regional Water Quality Control Board San Diego Region (RWQCB 9). The "wet-between storm event" for this Round 1 of RWQCB 9's work authorized via FY00-01 funding in support of SWRCB Contract No. 00-111-250. The work for the first year SWAMP RWQCB 9 effort, including this “wet-between storm event” season Round 1, focuses on monitoring Carlsbad and Los Penasquitos watersheds. A table is attached which provides a summary of the information from each station in regards to what type of media was authorized to be collected, and what was actually able to be collected.

2.0 Cruise Report

2.1 Objectives

The objectives were to collect water and sediment from fifteen (15) stations, ten (10) Carlsbad Watershed sites, and (5) Los Penasquitos Watershed sites. The water and sediment would be used for specific analyses as directed by RWQCB 9 in task order-00-9-001 (see Section 2.5 below). Blind duplicates were collected at a rate of 5% of the stations sampled for each specific type of analyses authorized. No field duplicate samples were authorized or collected for toxicity testing.

2.2 Sampling personnel

Sean Mundell
Bryan Frueh

MPSL/CDFG
MPSL/CDFG

Crew Lead
Scientific Aid

2.3 Authorization to collect samples

All sampling personnel are Marine Pollution Studies Laboratories staff (through San Jose State University Foundation) contracted through California Department of Fish and Game (CDFG) SWAMP contract # P0075038 to conduct the sample collection activities listed herein. The funding and authorization to collect the samples described herein is contained in the State Water Resources Control Board (SWRCB) to CDFG Task Order-00-9-001, including the description of each type of sample necessary to be collected at each station, based on analyses authorized on samples to be collected from each station.

2.4 Station selection and reconnaissance

RWQCB 9 SWAMP personnel chose sampling stations, conducted the pre-sample collection reconnaissance activities, provided reconnaissance sheets for sample sites, authorized the specific types of analyses to be conducted at each station, as well as the funding for the collection and analyses as set forth in the Task Order 00-9-001. See Table 1, which provides the attached summary of analysis and date collected for the locations sampled.

2.5 Summary of types of samples authorized to be collected

A total of 15 stations were visited during this Round 1 "wet-between storm event" sample collection effort, in order to attempt to collect samples of water and sediment. Sample stations were reached either via hiking or driving to the various streams, and carrying the sampling equipment to each station. Each of the 15 stations had the same water and sediment analyses authorized to be conducted, dictating the volumes of water necessary at each station, as well as the types of containers, and any specific collection (qa/qc requirements-preservatives, homogenizing, aliquoting, cooling, etc.).

At all 15 stations, multiparameter probe measurements were authorized to be taken for D.O., pH, temperature, conductivity, and turbidity. At all 15 stations, water was authorized to be collected for various conventional water quality parameter analyses (total ammonia--unionized ammonia will be calculated, and reported in the dataset, from the total ammonia measurement using synoptic instantaneous probe measurements for pH and temperature when water sample is taken for total ammonia; nitrate; ortho-phosphate; total phosphate; sulfate; TKN; Alkalinity). Water was also authorized to be collected for conducting water column chemistry for dissolved trace metals and organic pollutants (PCB's PAH's and conventional pesticides).

At all 15 stations, centroid velocity measurements were authorized to be taken. The velocity probe wading rod measures the total depth at an "average" location in the streambed. The velocity meter measures the flow by counting the total revolutions of the flow wheel. The flow wheel measures the stream velocity at 0.6 depth of the total depth in the streambed.

At all 15 stations, water samples were authorized to be collected for the EPA 2-species toxicity tests to be conducted (*Ceriodaphnia* and *Selenastrum* algae). At these same 15 stations, sediment samples were authorized to be collected for toxicity testing using *Hyalella*, and grain size assessment (% fines analysis).

The summary of authorized analyses for each station and types of samples to be collected are listed in Table 1. Once samples were collected, they were put on ice and shipped via overnight Federal Express service to various laboratories for authorized analysis, per appropriate SOP's.

2.6 Discussion

The sampling team encountered some problems during this sampling period. Over all most samples could be collected, but there are several points of possible improvement in sampling planning and information communication. First of all the sampling team needs the sampling plan, recon sheets and schedules to be in place at least 2 weeks prior to the field trip. We were unsure of some site locations and their directions before the sampling team left for the trip. This makes proper trip planning difficult and wastes time in the field when more sample collection could be taking place. It is best for the team to know every site and their directions before the trip takes place to better orient where and what order sample collection will occur.

Improved driving directions, site recon information as well as site identification is necessary. GPS coordinates are needed in decimal degrees for every site as well as written instructions including mile markers, street names, cross streets, major highways etc. A more accurate description of the distance from the "drive-in point" to the actual sample collection location would be extremely beneficial. This prevents confusion with sites from different watersheds. Recon information about the necessity of four-wheel drive, unusual access problems or special gear needed is necessary.

Finally, there were concerns at many of these stations that the water and sediment could be contaminated with elements detrimental to the sampling crew's health. While this is always a concern for sample collection efforts, and all samples should be deemed as potentially hazardous, it would be very helpful and in fact it is requested from here forward that any known information about a station be provided well in advance, so that proper precautions can be taken when collecting at a particular station. This would include any pre-existing knowledge that could be helpful to a sample collection crew, including discharges of STP's, animal waste facilities, known "hotspots", high crime areas, etc.

Over all, information on the reconnaissance sheets were helpful in aiding the samplers collection.

2.7 Results

Out of the 15 stations collected 2 (stations #906LPRSC4 and #906LDTEC3) were unable to be collected for sediment due to the sites consisting of small pebbles and large rocks. Thus, out of all the 15 stations sampled, 13 were sampled for sediment toxicity, grain size and TOC (% fines) and all 15 sites for water inorganics, toxicity, organics and dissolved trace metals were collected.

2.8 Description of Sample Collection Stations

There was one Marine Pollution Studies Laboratory team that sampled the Carlsbad and Los Penesquitos Watersheds during the week of 3/11-3/14 2002. Section 2.8.1 (below) lists the sampling date, time and occurrences in detail at each site.

2.8.1 Samples Collected the week of 3/11-3/14 2002 By: Sean Mundell and Bryan Frueh (Please note that only stations in Carlsbad HU are listed)

Station Name: Agua Hedionda Creek
Sample Station Number: 904CBAQH6
Date: 3/12/02 Arrival Time: 0800

This site was accessed as directed on the recon sheets. Samples were collected on the upstream side of the bridge in the main stem of the stream. There was a very small side stream off the main branch that was not sampled. There were signs of immigrant workers living under the bridge. All authorized water and sediment samples were collected.

Station Name: Buena Vista Creek
Sample Station Number: 904CBBVR4
Date: 3/12/02 Arrival Time: 1104

We accessed this site using the nominal coordinates on the GPS. There was an open gate that we could park in which made access easier to this site. The stream channel consisted of a lot of tulle overgrowth. There were many small side channels in the stream but one main stem in the middle of the channel. Water was collected in the main stem and sediment collected as a composite in all of the channels. Most of the fine grain sediment was found near or underneath the tulle. All authorized water and sediment samples were collected.

Station Name: Loma Alta Creek
Sample Station Number: 904CBLAC3
Date: 3/12/02 Arrival Time: 1220

We accessed this site using the nominal coordinates on the GPS. The sampling vehicle was parked on the curb just on the north side of the bridge (south of the railroad tracks). All authorized water and sediment samples were collected at this site.

Station Name: Buena Creek
Sample Station Number: 904CBBUR1
Date: 3/12/02 Arrival Time: 1410

We accessed this site using the nominal coordinates on the GPS. The sampling vehicle was pulled up onto the grass next to the river to avoid carrying sample equipment for a longer distance than necessary. All authorized water and sediment samples were collected at this site.

Station Name: San Marcos Creek
Sample Station Number: 904CBSAM3
Date: 3/12/02 Arrival Time: 1540

We accessed this site using the nominal coordinates on the GPS. There was a private driveway that was used for parking and easier access to the stream channel. Samples were collected on the downstream side of the bridge. All authorized water and sediment samples were collected.

Station Name: San Marcos Creek
Sample Station Number: 904CBSAM6
Date: 3/13/02 Arrival Time: 0710

We accessed this site using the nominal coordinates on the GPS. There was big dirt parking lot that was close to the sampling site. Since this site was very close to the Bataquitos Lagoon, the water was on a tidal prism and had no visible flow. The water also had a high salinity (12-14 ppt.). The sediment consisted of very compact clay that made in difficult to homogenize. The sediment also had a very strong hydrogen sulfide smell. The grain size/TOC jar and the archive jars could not be filled all the way due to the shortage of sediment collected. All authorized water and sediment samples were collected.

Station Name: Encinitas Creek
Sample Station Number: 904CBENC2
Date: 3/13/02 Arrival Time: 0856

We accessed this site using the nominal coordinates on the GPS. The sampling vehicle was pulled onto the curb to avoid having to carry the sampling equipment a long distance. Linda Pardy and two other R9 Water Control Board members met us at this site to see our sampling process. Bryan and I talked them through the whole sampling process for this site. All authorized water and sediment samples were collected.

Station Name: Cottonwood Creek
Sample Station Number: 904CBCWC2
Date: 3/13/02 Arrival Time: 1045

We accessed this site using the nominal coordinates on the GPS. Linda Pardy and crew were also with us at this site. This site used to be an old storm water drain that was later taken out and turned into a restoration site. We found fine grain sediment upstream of where the water sampling took place. All authorized water and sediment was collected.

Station Name: Escondido Creek
Sample Station Number: 904CBESC8
Date: 3/13/02 Arrival Time: 1300

We accessed this site using the nominal coordinates on the GPS. There was some difficulty finding flowing water due to a lot of stagnant pools surrounding the streambed. The vehicle was parked in the "Rent-X" lot just west of the stream. All authorized water and sediment samples were collected.

Station Name: Escondido Creek

Sample Station Number: 904CBESC5

Date: 3/14/02 Arrival Time: 0840

We accessed this site using the nominal coordinates on the GPS. After looking at the nominal position the sampling crew decided that it would be too difficult to carry all the sampling equipment down the steep bank to gain access to this site. We found easier access just upstream at the Elfin Forest Recreational Reserve. Blind Duplicate #900BDQ001 was sampled for each specific type of analyses authorized. All authorized water and sediment samples were collected.

Summary of Analyses and Date Collected

Region: 9 Task Order: 00-9-001
Season: Winter ProjectID: 00SW9001

StationID	StationName	Matrix	Inorganics	Organics	Metals, dissolved	Toxicity	Grain size/TOC	Archive	Comments
904CBAQH6	Agua Hedionda Creek 6	SED				3/12/2002	3/12/2002	3/12/2002	
904CBAQH6	Agua Hedionda Creek 6	WAT	3/12/2002	3/12/2002	3/12/2002	3/12/2002			
904CBBUR1	Buena Creek 1	SED				3/12/2002	3/12/2002	3/12/2002	
904CBBUR1	Buena Creek 1	WAT	3/12/2002	3/12/2002	3/12/2002	3/12/2002			
904CBBVR4	Buena Vista Creek 4	SED				3/12/2002	3/12/2002	3/12/2002	
904CBBVR4	Buena Vista Creek 4	WAT	3/12/2002	3/12/2002	3/12/2002	3/12/2002			
904CBCWC2	Cottonwood Creek 2	SED				3/13/2002	3/13/2002	3/13/2002	
904CBCWC2	Cottonwood Creek 2	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
904CBENC2	Encinitas Creek 2	SED				3/13/2002	3/13/2002	3/13/2002	
904CBENC2	Encinitas Creek 2	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
904CBESC5	Escondido Creek 5	SED				3/14/2002	3/14/2002	3/14/2002	Blind duplicate: 900BDQ001
904CBESC5	Escondido Creek 5	WAT	3/14/2002	3/14/2002	3/14/2002	3/14/2002			Blind duplicate: 900BDQ001
904CBESC8	Escondido Creek 8	SED				3/13/2002	3/13/2002	3/13/2002	
904CBESC8	Escondido Creek 8	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
904CBLAC3	Loma Alta Creek 3	SED				3/12/2002	3/12/2002	3/12/2002	
904CBLAC3	Loma Alta Creek 3	WAT	3/12/2002	3/12/2002	3/12/2002	3/12/2002			
904CBSAM3	San Marcos Creek 3	SED				3/12/2002	3/12/2002	3/12/2002	
904CBSAM3	San Marcos Creek 3	WAT	3/12/2002	3/12/2002	3/12/2002	3/12/2002			
904CBSAM6	San Marcos Creek 6	SED				3/13/2002	3/13/2002	3/13/2002	
904CBSAM6	San Marcos Creek 6	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
906LPLPC6	Los Penasquitos Creek 6	SED				3/13/2002	3/13/2002	3/13/2002	
906LPLPC6	Los Penasquitos Creek 6	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
906LPPOW2	Poway Creek 2	SED				3/14/2002	3/14/2002	3/14/2002	
906LPPOW2	Poway Creek 2	WAT	3/14/2002	3/14/2002	3/14/2002	3/14/2002			
906LPRSC4	Rose Canyon Creek 4	SED				*	*	*	No sediment
906LPRSC4	Rose Canyon Creek 4	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
906LPSOL2	Soledad Canyon Creek 2	SED				3/13/2002	3/13/2002	3/13/2002	
906LPSOL2	Soledad Canyon Creek 2	WAT	3/13/2002	3/13/2002	3/13/2002	3/13/2002			
906LPTEC3	Tecolote Creek 3	SED				*	*	*	No sediment
906LPTEC3	Tecolote Creek 3	WAT	3/14/2002	3/14/2002	3/14/2002	3/14/2002			
Total # Sites Sampled			15	15	15	28	13	13	

**Cruise Report for the
Surface Waters Ambient Monitoring Program (SWAMP)
of the
California Regional Water Quality Board San Diego Region (RWQCB9)**

Round 2 “Wet-High Base Flow” Season Sample Collection (FY00-01 funded)

Sampling dates: April 22-25, 2002

**Written by: Sean Mundell
MPSL at Moss Landing Marine Laboratories
Updated: 4/29/02**

2.0 Introduction

This report describes the sampling activities and access issues for sampling stations for the SWAMP “wet-high base flow” sample collection effort for the California Regional Water Quality Control Board San Diego Region (RWQCB 9). The “wet-high base flow” for this Round 1 of RWQCB 9's work authorized via FY00-01 funding in support of SWRCB Contract No. 00-111-250. The work for the first year SWAMP RWQCB 9 effort, including this “wet-high base flow” season Round 2, focuses on monitoring Carlsbad and Los Penasquitos watersheds. Table 1 is attached which provides a summary of the information from each station in regards to what type of media was authorized to be collected, and what was actually able to be collected.

2.0 Cruise Report

2.1 Objectives

The objectives were to collect water and sediment from fifteen (15) stations, ten (10) Carlsbad Watershed sites, and (5) Los Penasquitos Watershed sites. The water and sediment would be used for specific analyses as directed by RWQCB 9 in task order-00-9-001 (see Section 2.5 below). Blind duplicates were collected at a rate of 5% of the stations sampled for each specific type of analyses authorized. No field duplicate samples were authorized or collected for toxicity testing.

2.2 Sampling personnel

Sean Mundell
Bettina Sohst

MPSL/CDFG
MPSL/CDFG

Crew Lead
Crew Lead

2.3 Authorization to collect samples

All sampling personnel are Marine Pollution Studies Laboratories staff (through San Jose State University Foundation) contracted through California Department of Fish and Game (CDFG) SWAMP contract # P0075038 to conduct the sample collection activities listed herein. The funding and authorization to collect the samples described herein is contained in the State Water Resources Control Board (SWRCB) to CDFG Task Order-00-9-001, including the description of each type of sample necessary to be collected at each station, based on analyses authorized on samples to be collected from each station.

2.4 Station selection and reconnaissance

RWQCB 9 SWAMP personnel chose sampling stations, conducted the pre-sample collection reconnaissance activities, provided reconnaissance sheets for sample sites, authorized the specific types of analyses to be conducted at each station, as well as the funding for the collection and analyses as set forth in the Task Order 00-9-001. See Table 1, which provides the attached summary of analysis and date collected for the locations sampled.

2.5 Summary of types of samples authorized to be collected

A total of 15 stations were visited during this Round 1 "winter season" sample collection effort, in order to attempt to collect samples of water and sediment. Sample stations were reached either via hiking or driving to the various streams, and carrying the sampling equipment to each station. Each of the 15 stations had the same water and sediment analyses authorized to be conducted, dictating the volumes of water necessary at each station, as well as the types of containers, and any specific collection (qa/qc requirements-preservatives, homogenizing, aliquoting, cooling, etc.).

At all 15 stations, multiparameter probe measurements were authorized to be taken for D.O., pH, temperature, conductivity, and turbidity. At all 15 stations, water was authorized to be collected for various conventional water quality parameter analyses (total ammonia--unionized ammonia will be calculated, and reported in the dataset, from the total ammonia measurement using synoptic instantaneous probe measurements for pH and temperature when water sample is taken for total ammonia; nitrate; ortho-phosphate; total phosphate; sulfate; TKN; Alkalinity). Water was also authorized to be collected for conducting water column chemistry for dissolved trace metals and organic pollutants (PCB's PAH's and conventional pesticides).

At all 15 stations, centroid velocity measurements were authorized to be taken. The velocity probe wading rod measures the total depth at an "average" location in the streambed. The velocity meter measures the flow by counting the total revolutions of the flow wheel. The flow wheel measures the stream velocity at 0.6 depth of the total depth in the streambed.

At all 15 stations, water samples were authorized to be collected for the EPA 2-species toxicity tests to be conducted (*Ceriodaphnia* and *Selenastrum* algae). At these same 15 stations, sediment samples were authorized to be collected for toxicity testing using *Hyalella*, and grain size assessment (% fines analysis).

The summary of authorized analyses for each station and types of samples to be collected are listed in Table 1. Once samples were collected, they were put on ice and shipped via overnight Federal Express service to various laboratories for authorized analysis, per appropriate SOP's.

2.6 Discussion

Since the sampling team had already previously sampled the 15 sites, the access issues and directions were much more easier to follow. There were concerns at many of these stations that the water and sediment could be contaminated with elements detrimental to the sampling crew's health. Due to the heavy rainfall on 3/24, some of the sites (see section 2.8.1) had heavy storm water runoff in the creeks. While this is always a concern for sample collection efforts, and all samples should be deemed as potentially hazardous, it would be very helpful and in fact it is requested from here forward that any known information about a station be provided well in advance, so that proper precautions can be taken when collecting at a particular station. This would include any pre-existing knowledge that could be helpful to a sample collection crew, including discharges of STP's, animal waste facilities, known "hotspots", high crime areas, etc.

2.7 Results

Out of the 15 stations sampled, all of the 15 stations were sampled for sediment toxicity, grain size and TOC (% fines) and all 15 stations for water inorganics, toxicity, organics and dissolved trace metals were collected. There was a shortage of sediment at site # 906LPRSC4 due to the elevated water levels, but the half of the authorized sediment was still collected.

2.8 Description of Sample Collection Stations

There was one CDFG/Marine Pollution Studies Laboratory team that sampled the Carlsbad and Los Penesquitos Watersheds during the week of 4/22-4/25, 2002. Section 2.8.1 (below) lists the sampling date, time and occurrences in detail at each site.

2.8.1 Samples Collected the week of 4/22-4/25, 2002 By: Sean Mundell and Bettina Sohst. (Please note that only stations in Carlsbad HU are listed)

Station Name: Loma Alta Creek 3
Sample Station Number: 904CBLAC3
Date: 4/22/02 Arrival Time: 1400

We accessed this site using the nominal coordinates on the GPS. The sampling vehicle was parked on the curb just on the north side of the bridge (south of the railroad tracks and upstream of the bridge). All authorized water and sediment samples were collected at this site. _____

Station Name: Buena Vista Creek 4
Sample Station Number: 904CBBVR4
Date: 4/22/02 Arrival Time: 1455

We accessed this site using the nominal coordinates on the GPS. There was an open gate that we could park in which made access easier to this site. The stream channel consisted of a lot of tulle overgrowth. There were many small side channels in the stream but one main stem in the middle of the channel. Water was collected in the main stem and sediment collected as a composite in all of the channels. Most of the fine grain sediment was found near or underneath the tulle. All authorized water and sediment samples were collected.

Station Name: Buena Creek 1
Sample Station Number: 904CBBUR1
Date: 4/23/02 Arrival Time: 0730

We accessed this site using the nominal coordinates on the GPS. The sampling vehicle was pulled up onto the grass next to the river to avoid carrying sample equipment for a longer distance than necessary. All of the fine grain sediment was found underneath the vegetation. All authorized water and sediment samples were collected.

Station Name: San Marcos Creek 3
Sample Station Number: 904CBSAM3
Date: 4/23/02 Arrival Time: 0850

We accessed this site using the nominal coordinates on the GPS. There was a private driveway that was used for parking and easier access to the stream channel. Samples were collected on the downstream side of the bridge. All authorized water and sediment samples were collected.

Station Name: Agua Hedionda Creek 6
Sample Station Number: 904CBAQH6
Date: 4/23/02 Arrival Time: 1015

This site was accessed as directed on the recon sheets. Samples were collected on the upstream side of the bridge in the main stem of the stream. There was a very small side stream off the main branch that was not sampled. There were signs of immigrant workers living under the bridge. All authorized water and sediment samples were collected.

Station Name: San Marcos Creek 6
Sample Station Number: 904CBSAM6
Date: 4/23/02 Arrival Time: 1200

We accessed this site using the nominal coordinates on the GPS. There was big dirt parking lot that was close to the sampling site. Since this site was very close to the Bataquitos Lagoon, the water was on a tidal prism and had no visible flow. The water also had a high conductivity (6.047 mS/cm). The sediment consisted of very compact clay that made in difficult to homogenize. The sediment also had a very strong hydrogen sulfide smell. All authorized water and sediment samples were collected.

Station Name: Encinitas Creek 2
Sample Station Number: 904CBENC2
Date: 4/23/02 Arrival Time: 0856

We accessed this site using the nominal coordinates on the GPS. The sampling vehicle was pulled onto the curb to avoid having to carry the sampling equipment a long distance. The water in the stream was stagnant and had a pollen layer on the surface. All authorized water and sediment samples were collected.

Station Name: Cottonwood Creek 2
Sample Station Number: 904CBCWC2
Date: 4/23/02 Arrival Time: 1355

We accessed this site using the nominal coordinates on the GPS. Fine grain sediment was hard to collect due to the wire mesh in the streambed (restoration site). There was some fine grain sediment found upstream of where the water sampling took place. All authorized water and sediment was collected.

Station Name: Escondido Creek 5
Sample Station Number: 904CBESC5
Date: 4/24/02 Arrival Time: 0800

We accessed this site using the nominal coordinates on the GPS. After looking at the nominal position the sampling crew decided that it would be too difficult to carry all the sampling equipment down the steep bank to gain access to this site. We found easier access just upstream at the Elfin Forest Recreational Reserve. Blind Duplicate #900BDQ002 was sampled for each specific type of analyses authorized. All authorized water and sediment samples were collected.

Station Name: Escondido Creek 8
Sample Station Number: 904CBESC8
Date: 3/13/02 Arrival Time: 1300

We accessed this site using the nominal coordinates on the GPS. There was some difficulty finding flowing water due to a lot of stagnant pools surrounding the streambed. The vehicle was parked in the "Rent-X" lot just west of the stream. The only sediment was in the pools that were next to the streambed. The streambed consisted of only small pebbles and rocks. All authorized water and sediment samples were collected.

Table 1: Summary of analyses and date collected for RWQCB 9's Wet Season High Base Flow sampling run (Task Order 00-9-001).

StationName	StationID	ProjectID	Matrix	Inorganics	Metals, dissolved	Organics	Toxicity	Grain size/TOC	Archive	Comments
Field duplicate 2 - RWQCB9	900FDQ002	00SW9001	SED					4/24/2002	4/24/2002	904CBESC5
Field duplicate 2 - RWQCB9	900FDQ002	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002				904CBESC5
Agua Hedionda Creek 6	904CBAQH6	00SW9001	SED				4/23/2002	4/23/2002	4/23/2002	
Agua Hedionda Creek 6	904CBAQH6	00SW9001	WAT	4/23/2002	4/23/2002	4/23/2002	4/23/2002			
Buena Creek 1	904CBBUR1	00SW9001	SED				4/23/2002	4/23/2002	4/23/2002	
Buena Creek 1	904CBBUR1	00SW9001	WAT	4/23/2002	4/23/2002	4/23/2002	4/23/2002			
Buena Vista Creek 4	904CBBVR4	00SW9001	SED				4/22/2002	4/22/2002	4/22/2002	
Buena Vista Creek 4	904CBBVR4	00SW9001	WAT	4/22/2002	4/22/2002	4/22/2002	4/22/2002			
Cottonwood Creek 2	904CBCWC2	00SW9001	SED				4/23/2002	4/23/2002	4/23/2002	
Cottonwood Creek 2	904CBCWC2	00SW9001	WAT	4/23/2002	4/23/2002	4/23/2002	4/23/2002			
Encinitas Creek 2	904CBENC2	00SW9001	SED				4/23/2002	4/23/2002	4/23/2002	
Encinitas Creek 2	904CBENC2	00SW9001	WAT	4/23/2002	4/23/2002	4/23/2002	4/23/2002			
Escondido Creek 5	904CBESC5	00SW9001	SED				4/24/2002	4/24/2002	4/24/2002	900BDQ002
Escondido Creek 5	904CBESC5	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			900BDQ002
Escondido Creek 8	904CBESC8	00SW9001	SED				4/24/2002	4/24/2002	4/24/2002	
Escondido Creek 8	904CBESC8	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			
Loma Alta Creek 3	904CBLAC3	00SW9001	SED				4/22/2002	4/22/2002	4/22/2002	
Loma Alta Creek 3	904CBLAC3	00SW9001	WAT	4/22/2002	4/22/2002	4/22/2002	4/22/2002			
San Marcos Creek 3	904CBSAM3	00SW9001	SED				4/23/2002	4/23/2002	4/23/2002	
San Marcos Creek 3	904CBSAM3	00SW9001	WAT	4/23/2002	4/23/2002	4/23/2002	4/23/2002			
San Marcos Creek 6	904CBSAM6	00SW9001	SED				4/23/2002	4/23/2002	4/23/2002	
San Marcos Creek 6	904CBSAM6	00SW9001	WAT	4/23/2002	4/23/2002	4/23/2002	4/23/2002			
Los Penasquitos Creek 6	906LPLPC6	00SW9001	SED				4/24/2002	4/24/2002	4/24/2002	
Los Penasquitos Creek 6	906LPLPC6	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			
Poway Creek 2	906LPPOW2	00SW9001	SED				4/24/2002	4/24/2002	4/24/2002	
Poway Creek 2	906LPPOW2	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			
Rose Canyon Creek 4	906LPRSC4	00SW9001	SED				4/24/2002	4/24/2002	*	Not collected; not enough sediment
Rose Canyon Creek 4	906LPRSC4	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			
Soledad Canyon Creek 2	906LPSOL2	00SW9001	SED				4/24/2002	4/24/2002	4/24/2002	
Soledad Canyon Creek 2	906LPSOL2	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			
Tecolote Creek 3	906LPTEC3	00SW9001	SED				4/24/2002	4/24/2002	4/24/2002	
Tecolote Creek 3	906LPTEC3	00SW9001	WAT	4/24/2002	4/24/2002	4/24/2002	4/24/2002			

**Cruise Report for the
Surface Waters Ambient Monitoring Program (SWAMP)
of the
California Regional Water Quality Board San Diego Region (RWQCB9)
Round 3 “Declining Base Flow” Season Sample Collection (FY00-01 funded)**

Sampling dates: June 3-6, 2002

**Written by: Bettina Sohst
MPSL at Moss Landing Marine Laboratories
Updated: 6/25/02**

3.0 Introduction

This report describes the sampling activities and access issues for sampling stations visited during the SWAMP “declining base flow” sample-collection effort for the California Regional Water Quality Control Board San Diego Region (RWQCB 9). The sampling for this “declining base flow” season (Round 3) of RWQCB 9's work was authorized via FY00-01 funding in support of SWRCB Contract No. 00-111-250. The work for the first year SWAMP RWQCB 9 effort, including this “declining base flow” season Round 3, focuses on monitoring Carlsbad and Los Penasquitos watersheds. Table 1 is attached, which provides a summary of the information from each station in regards to what type of media was authorized to be collected, and what was actually possible to be collected.

2.0 Cruise Report

2.1 Objectives

The objectives were to collect water and sediment from fifteen (15) stations - ten (10) Carlsbad Watershed sites, and five (5) Los Penasquitos Watershed sites. The water and sediment would be used for specific analyses as directed by RWQCB 9 in task order-00-9-001 (see Section 2.5 below). Blind duplicates were collected at a rate of 5% of the stations sampled for each specific type of analyses authorized. No field duplicate samples were authorized or collected for toxicity testing.

2.2 Sampling personnel

Bettina Sohst	MPSL/CDFG	Crew Lead
Autumn Bonnema	MPSL/CDFG	Scientific Aid

2.3 Authorization to collect samples

All sampling personnel is Marine Pollution Studies Laboratories staff (through San Jose State University Foundation) contracted through California Department of Fish and Game (CDFG) SWAMP contract # P0075038 to conduct the sample collection activities listed herein. The funding and authorization to collect the samples described herein is contained in the State Water Resources Control Board (SWRCB) to CDFG Task Order-00-9-001, including the description of each type of sample necessary to be collected at each station, based on analyses authorized for samples to be collected from each station.

2.4 Station selection and reconnaissance

RWQCB 9 SWAMP personnel chose sampling stations, conducted the pre-sample collection reconnaissance activities, provided reconnaissance sheets for sample sites and authorized the specific types of analyses to be conducted at each station, as well as the funding for the collection and analyses as set forth in the Task Order 00-9-001. See Table 1, which provides the attached summary of analysis and date collected for the locations sampled.

2.5 Summary of types of samples authorized to be collected

A total of 15 stations were visited during this Round 3 "declining base flow" sample collection effort, in order to attempt to collect samples of water and sediment. Sample stations were reached either via hiking or driving to the various streams, and carrying the sampling equipment to each station. Each of the 15 stations had the same water and sediment analyses authorized to be conducted, dictating the volumes of water necessary at each station, as well as the types of containers, and any specific collection (QA/QC requirements-preservatives, homogenizing, aliquoting, cooling, etc.).

At all 15 stations, multiparameter probe measurements were authorized to be taken for D.O., pH, temperature, conductivity, and turbidity.

At all 15 stations, centroid velocity measurements were authorized to be taken. The velocity probe wading rod measures the total depth at an "average" location in the streambed. The velocity meter measures the flow by counting the total revolutions of the flow wheel. The flow wheel measures the stream velocity at 6/10 of the total depth in the streambed.

At all 15 stations, water was authorized to be collected for various conventional water quality parameter analyses (total ammonia--unionized ammonia will be calculated, and reported in the dataset, from the total ammonia measurement using synoptic instantaneous probe measurements for pH and temperature when water sample is taken for total ammonia; nitrate; ortho-phosphate; total phosphate; sulfate; TKN; Alkalinity). Water was also authorized to be collected for conducting water column chemistry for

dissolved trace metals and organic pollutants (PCB's PAH's and conventional pesticides).

At all 15 stations, water samples were authorized to be collected for the EPA 2-species toxicity tests to be conducted (*Ceriodaphnia* and *Selenastrum* algae). At these same 15 stations, sediment samples were authorized to be collected for toxicity testing using *Hyalella*, and for grain size assessment (% fines analysis) as well as for Sediment Archives.

The summary of authorized analyses for each station and types of samples to be collected are listed in Table 1. Once samples were collected, they were put on ice and shipped via overnight Federal Express service to various laboratories for authorized analysis, per appropriate SOP's.

2.6 Discussion

One of the team members had visited the sites previously. Using some of the memorized access routes made finding the sites easier. Questions about correct locations and driving directions still arose, though and more detailed recon. driving directions are needed for some sites (see 2.8.1).

There were concerns at many of these stations that the water and sediment could be contaminated with elements detrimental to the sampling crew's health. While this is always a concern for sample collection efforts, and all samples should be deemed as potentially hazardous, it would be very helpful and in fact it is requested from here forward that any known information about a station be provided well in advance, so that proper precautions can be taken when collecting at a particular station. This would include any pre-existing knowledge that could be helpful to a sample collection crew, including discharges of STP's, animal waste facilities, known "hotspots", high crime areas, etc.

2.7 Results

All of the 15 stations were sampled for sediment toxicity, grain size (% fines) and Archives as well as for water inorganics, toxicity, organics and dissolved trace metals. Only five sites allowed velocity measurement. The other streams were either flowing too slow for the instrument to work or were close to stagnant.

2.8 Description of Sample Collection Stations

One Moss Landing Marine Laboratory team sampled the Carlsbad and Los Penesquitos Watersheds during the week of 6/3-6/6/2002. Section 2.8.1 (below) lists the sampling date, time and occurrences in detail at each site.

2.8.1 Samples Collected the week of 6/3 to 6/6/2002

Station Name: Loma Alta Creek 3
Sample Station Number: 904CBLAC3
Date: 6/3/02 Arrival Time: 1512

This site was accessed as directed on the recon. sheets. Samples were collected on the upstream side of the bridge. Flow was very slow. All authorized water and sediment samples were collected.

Station Name: Buena Vista Creek 4
Sample Station Number: 904CBBVR4
Date: 6/3/02 Arrival Time: 1625

We accessed this site the same way as during the last sampling run. There was an open gate that we could park in which made access to this site easier. The stream channel consisted of a lot of tulle overgrowth. There were many small side channels in the stream but one main stem in the middle of the channel. Water was collected in the main stem and sediment collected as a composite in all of the channels. Most of the fine grain sediment was found near or underneath the tulle. All authorized water and sediment samples were collected.

Station Name: Buena Creek 1
Sample Station Number: 904CBBUR1
Date: 6/3/02 Arrival Time: 1750

We tried to follow the recon. information, but driving directions were unclear. We ended up using the GPS coordinates to find this site and parked as directed in the recon. form. There was a lot of trash at this site. All authorized water and sediment samples were collected at this site.

Station Name: Agua Hedionda Creek 6
Sample Station Number: 904CBAQH6
Date: 6/4/02 Arrival Time: 0633

We accessed this site the same way as during the last sampling run. Samples were collected on the upstream side of the bridge in the main stem of the stream. There was a very small side stream off the main branch that was not sampled. All authorized water and sediment samples were collected at this site.

Station Name: San Marcos Creek 6
Sample Station Number: 904CBSAM6
Date: 6/4/02 Arrival Time: 0805

We accessed this site the same way as during the last sampling run. There was a big dirt parking lot that was close to the sampling site, which could be accessed through the La Costa Resort and Spa. Since this site was very close to the Bataquitos Lagoon, the water was on a tidal prism and had no visible flow. Conductivity and salinity measurements were above freshwater values. All authorized water and sediment samples were collected.

Station Name: Encinitas Creek 2
Sample Station Number: 904CBENC2
Date: 6/4/02 Arrival Time: 0927

We accessed this site the same way as during the last sampling run. The sampling vehicle was pulled onto the curb to avoid having to carry the sampling equipment a long distance. The water in the stream was stagnant. All authorized water and sediment samples were collected.

Station Name: Cottonwood Creek 2
Sample Station Number: 904CBCWC2
Date: 6/4/02 Arrival Time: 1020

We accessed this site the same way as during the last sampling run. The stream was completely overgrown with vegetation. Water and sediment was extremely hard to collect due to the wire mesh in the streambed (restoration site). The water level was very low (<0.1m). All larger water sample bottles had to be filled using a smaller sample bottle. All authorized water and sediment samples were collected.

Station Name: Escondido Creek 8
Sample Station Number: 904CBESC8
Date: 6/4/02 Arrival Time: 1125

We accessed this site the same way as during the last sampling run. The access to the stream bed was still impaired by lots of vegetation. The vehicle was parked in the "Rent-

X” lot just west of the stream. Sediment was extremely difficult to find. The pools that had been sampled during the previous sampling run where dried up now. All authorized water and sediment samples were collected.

Station Name: Escondido Creek 5
Sample Station Number: 904CBESC5
Date: 6/4/02 Arrival Time: 1305

We accessed this site the same way as during the last sampling run. Blind Duplicate #900BDQ003 was sampled for each specific type of analyses authorized. All authorized water and sediment samples were collected.

Station Name: San Marcos Creek 3
Sample Station Number: 904CBSAM3
Date: 6/4/02 Arrival Time: 1519

We drove to the area following the recon. driving directions and the nominal GPS coordinates. B. Sohst did not recognize the site from last time’s sampling, so we called Jimmy Smith. He verified that we were at the correct location. All authorized water and sediment samples were collected.

Contact SDRWQCB for Table 1 of June 2002 Cruise Report

**Cruise Report for the
Surface Waters Ambient Monitoring Program (SWAMP)
of the
California Regional Water Quality Board San Diego Region (RWQCB9)
Round 4 “Minimum Base Flow” Season Sample Collection (FY00-01 funded)**

Sampling dates: September 16-19, 2002

**Written by: Sean Mundell
MPSL at Moss Landing Marine Laboratories
Updated: 10/14/02**

4.0 Introduction

This report describes the sampling activities and access issues for sampling stations visited during the SWAMP “minimum base flow” sample-collection effort for the California Regional Water Quality Control Board San Diego Region (RWQCB 9). The sampling for this “minimum base flow” season (Round 4) of RWQCB 9's work was authorized via FY00-01 funding in support of SWRCB Contract No. 00-111-250. The work for the first year SWAMP RWQCB 9 effort, including this “minimum base flow” season Round 4, focuses on monitoring Carlsbad and Los Penasquitos watersheds. Table 1 is attached, which provides a summary of the information from each station in regards to what type of media was authorized to be collected, and what was actually possible to be collected.

2.0 Cruise Report

2.1 Objectives

The objectives were to collect water and sediment from fifteen (15) stations - ten (10) Carlsbad Watershed sites, and five (5) Los Penasquitos Watershed sites. The water and sediment would be used for specific analyses as directed by RWQCB 9 in task order-00-9-001 (see Section 2.5 below). Blind duplicates were collected at a rate of 5% of the stations sampled for each specific type of analyses authorized. No field duplicate samples were authorized or collected for toxicity testing.

2.2 Sampling personnel

Sean Mundell	MPSL/CDFG	Crew Lead
Dylan Service	MPSL/CDFG	Marine Research Technician

2.3 Authorization to collect samples

All sampling personnel is Marine Pollution Studies Laboratories staff (through San Jose State University Foundation) contracted through California Department of Fish and Game (CDFG) SWAMP contract # P0075038 to conduct the sample collection activities listed herein. The funding and authorization to collect the samples described herein is contained in the State Water Resources Control Board (SWRCB) to CDFG Task Order-00-9-001, including the description of each type of sample necessary to be collected at each station, based on analyses authorized for samples to be collected from each station.

2.4 Station selection and reconnaissance

RWQCB 9 SWAMP personnel chose sampling stations, conducted the pre-sample collection reconnaissance activities, provided reconnaissance sheets for sample sites and authorized the specific types of analyses to be conducted at each station, as well as the funding for the collection and analyses as set forth in the Task Order 00-9-001. See Table 1, which provides the attached summary of analysis and date collected for the locations sampled.

2.5 Summary of types of samples authorized to be collected

A total of 14 stations were visited during this Round 4 "minimum base flow" sample collection effort, in order to attempt to collect samples of water and sediment. Sample stations were reached either via hiking or driving to the various streams, and carrying the sampling equipment to each station. Each of the 14 stations had the same water and sediment analyses authorized to be conducted, dictating the volumes of water necessary at each station, as well as the types of containers, and any specific collection (QA/QC requirements-preservatives, homogenizing, aliquoting, cooling, etc.).

At all 14 stations, multiparameter probe measurements were authorized to be taken for D.O., pH, temperature, conductivity, and turbidity.

At all 14 stations, centroid velocity measurements were authorized to be taken. The velocity probe wading rod measures the total depth at an "average" location in the streambed. The velocity meter measures the flow by counting the total revolutions of the flow wheel. The flow wheel measures the stream velocity at 6/10 of the total depth in the streambed.

At all 14 stations, water was authorized to be collected for various conventional water quality parameter analyses (total ammonia--unionized ammonia will be calculated, and reported in the dataset, from the total ammonia measurement using synoptic instantaneous probe measurements for pH and temperature when water sample is taken for total ammonia; nitrate; ortho-phosphate; total phosphate; sulfate; TKN; Alkalinity). Water was also authorized to be collected for conducting water column chemistry for

dissolved trace metals and organic pollutants (PCB's PAH's and conventional pesticides).

At all 14 stations, water samples were authorized to be collected for the EPA 2-species toxicity tests to be conducted (*Ceriodaphnia* and *Selenastrum* algae). At these same 14 stations, sediment samples were authorized to be collected for toxicity testing using *Hyalella*, and for grain size assessment (% fines analysis) as well as for Sediment Archives.

The summary of authorized analyses for each station and types of samples to be collected are listed in Table 1. Once samples were collected, they were put on ice and shipped via overnight Federal Express service to various laboratories for authorized analysis, per appropriate SOP's.

2.6 Discussion

Since the sampling team had already been all of the stations, there was no problem finding the sample locations. RWQCB 9 sampling personnel conducted the pre-sample collection reconnaissance activities and found that Tecolote Creek (site # 906LPTEC3) was dry. This made a total of 14 stations rather than the usual 15 stations sampled for Region 9. No alternate sites were sampled for this station.

There were concerns at many of these stations that the water and sediment could be contaminated with elements detrimental to the sampling crew's health. While this is always a concern for sample collection efforts, and all samples should be deemed as potentially hazardous, it would be very helpful and in fact it is requested from here forward that any known information about a station be provided well in advance, so that proper precautions can be taken when collecting at a particular station. This would include any pre-existing knowledge that could be helpful to a sample collection crew, including discharges of STP's, animal waste facilities, known "hotspots", high crime areas, etc.

2.7 Results

Out of the 15 stations authorized to be sampled, 13 of the 15 were sampled for sediment toxicity, grain size (% fines) and archives. Site # 906LPRSC4 (Rose Canyon Creek) had only small pebbles and large rocks so no sediment was collected. Site # 906LPTEC3 was dry and no water or sediment samples were collected at this site. 14 of the 15 stations authorized were collected for water inorganics, toxicity, organics and dissolved trace metals. Blind Duplicate #900BDQ004 was collected at site #904CBESC5 (San Marcos Creek). Blind duplicates were collected at a rate of 5% of the stations sampled for each specific type of analyses authorized.

2.8 Description of Sample Collection Stations

One Moss Landing Marine Laboratory team sampled the Carlsbad and Los Penesquitos Watersheds during the week of 9/16-9/10/2002. Section 2.8.1 (below) lists the sampling date, time and occurrences in detail at each site.

2.8.1 Samples Collected the week of 9/16 to 9/18 2002

Station Name: Loma Alta Creek 3
Sample Station Number: 904CBLAC3
Date: 9/16/02 Arrival Time: 1515

This site was accessed as directed on the recon. sheets. Samples were collected on the upstream side of the bridge. There was a visible flow but was not measurable with the flow meter. All authorized water and sediment samples were collected.

Station Name: Buena Vista Creek 4
Sample Station Number: 904CBBVR4
Date: 9/16/02 Arrival Time: 1605

The old access gate to this sample site was locked so the team sampled just upstream of the bridge (upstream of the old site). The sampling team had to walk down the side of the cement culvert to access the water. The stream channel consisted of a lot of tulle overgrowth. There were many small side channels in the stream but one main stem in the middle of the channel. Water was collected in the main stem and sediment collected as a composite in all of the channels. Most of the fine grain sediment was found near or underneath the tulle. All authorized water and sediment samples were collected.

Station Name: Buena Creek 1
Sample Station Number: 904CBBUR1
Date: 9/17/02 Arrival Time: 0730

This site was accessed as directed on the recon. sheets. There was a lot of trash at this site and the stream channel was overgrown with vegetation. All authorized water and sediment samples were collected at this site.

Station Name: Agua Hedionda Creek 6
Sample Station Number: 904CBAQH6
Date: 9/17/02 Arrival Time: 0900

We accessed this site the same way as during the last sampling run. Samples were collected on the upstream side of the bridge in the main stem of the stream. There was a very small side stream off the main branch that was not sampled. All authorized water and sediment samples were collected at this site.

Station Name: San Marcos Creek 6
Sample Station Number: 904CBSAM6
Date: 9/17/02 Arrival Time: 0945

We accessed this site the same way as during the last sampling run. There was a big dirt parking lot that was close to the sampling site, which could be accessed through the La Costa Resort and Spa. Since this site was very close to the Bataquitos Lagoon, the water was on a tidal prism and had no visible flow. Conductivity and salinity measurements were above freshwater values. All authorized water and sediment samples were collected.

Station Name: Encinitas Creek 2
Sample Station Number: 904CBENC2
Date: 9/17/02 Arrival Time: 1100

We accessed this site the same way as during the last sampling run. The sampling vehicle was pulled onto the curb to avoid having to carry the sampling equipment a long distance. There was no measurable flow but water could be seen moving downstream. All authorized water and sediment samples were collected.

Station Name: Cottonwood Creek 2
Sample Station Number: 904CBCWC2
Date: 9/17/02 Arrival Time: 1250

We accessed this site the same way as during the last sampling run. The stream was completely overgrown with vegetation. Water and sediment was extremely hard to collect due to the wire mesh in the streambed (restoration site). We found a deep pool (.5m) where water bottles could be efficiently dipped into the water. All authorized water and sediment samples were collected.

Station Name: Escondido Creek 8
Sample Station Number: 904CBESC8
Date: 9/17/02 Arrival Time: 1330

We accessed this site the same way as during the last sampling run. The access to the streambed was still impaired by lots of vegetation. The vehicle was parked in the “Rent-X” lot just west of the stream. Sediment was extremely difficult to find. The pools that had been sampled during the previous sampling run where dried up now. All authorized water and sediment samples were collected.

Station Name: San Marcos Creek 3
Sample Station Number: 904CBSAM3
Date: 9/18/02 Arrival Time: 0730

We drove to the area following the recon. information. All authorized water and sediment samples were collected.

Station Name: Escondido Creek 5
Sample Station Number: 904CBESC5
Date: 9/18/02 Arrival Time: 0900

We accessed this site the same way as during the last sampling run. Blind Duplicate #900BDQ004 was sampled for each specific type of analyses authorized. All authorized water and sediment samples were collected.

Table 1. Analyses collected for RWQCB 9's Minimum Base Flow season sampling (ProjectID 00SW9001; Task Order 00-9-001).

StationName	StationID	Matrix	Inorganics	Metals, dissolved	Organics	Toxicity	Grain size/TOC	Archive	Comments
Blind duplicate 4	900BDQ004	SedTox_Chem					9/18/2002	9/18/2002	904CBESC5
Blind duplicate 4	900BDQ004	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002				904CBESC5
Agua Hedionda Creek 6	904CBAQH6	SedTox_Chem					9/17/2002	9/17/2002	
Agua Hedionda Creek 6	904CBAQH6	WaterTox_Chem	9/17/2002	9/17/2002	9/17/2002	9/17/2002			
Buena Creek 1	904CBBUR1	SedTox_Chem					9/17/2002	9/17/2002	
Buena Creek 1	904CBBUR1	WaterTox_Chem	9/17/2002	9/17/2002	9/17/2002	9/17/2002			
Buena Vista Creek 4	904CBBVR4	SedTox_Chem					9/16/2002	9/16/2002	
Buena Vista Creek 4	904CBBVR4	WaterTox_Chem	9/16/2002	9/16/2002	9/16/2002	9/16/2002			
Cottonwood Creek 2	904CBCWC2	SedTox_Chem					9/17/2002	9/17/2002	
Cottonwood Creek 2	904CBCWC2	WaterTox_Chem	9/17/2002	9/17/2002	9/17/2002	9/17/2002			
Encinitas Creek 2	904CBENC2	SedTox_Chem					9/17/2002	9/17/2002	
Encinitas Creek 2	904CBENC2	WaterTox_Chem	9/17/2002	9/17/2002	9/17/2002	9/17/2002			
Escondido Creek 5	904CBESC5	SedTox_Chem					9/18/2002	9/18/2002	900BDQ004
Escondido Creek 5	904CBESC5	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002	9/18/2002			900BDQ004
Escondido Creek 8	904CBESC8	SedTox_Chem					9/17/2002	9/17/2002	
Escondido Creek 8	904CBESC8	WaterTox_Chem	9/17/2002	9/17/2002	9/17/2002	9/17/2002			
Loma Alta Creek 3	904CBLAC3	SedTox_Chem					9/16/2002	9/16/2002	
Loma Alta Creek 3	904CBLAC3	WaterTox_Chem	9/16/2002	9/16/2002	9/16/2002	9/16/2002			
San Marcos Creek 3	904CBSAM3	SedTox_Chem					9/18/2002	9/18/2002	
San Marcos Creek 3	904CBSAM3	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002	9/18/2002			
San Marcos Creek 6	904CBSAM6	SedTox_Chem					9/17/2002	9/17/2002	
San Marcos Creek 6	904CBSAM6	WaterTox_Chem	9/17/2002	9/17/2002	9/17/2002	9/17/2002			
Los Penasquitos Creek 6	906LPLPC6	SedTox_Chem					9/18/2002	9/18/2002	
Los Penasquitos Creek 6	906LPLPC6	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002	9/18/2002			
Poway Creek 2	906LPPOW2	SedTox_Chem					9/18/2002	9/18/2002	
Poway Creek 2	906LPPOW2	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002	9/18/2002			
Rose Canyon Creek 4	906LPRSC4	SedTox_Chem					*	*	Not sampled; no fine grain sediment
Rose Canyon Creek 4	906LPRSC4	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002	9/18/2002			
Soledad Canyon Creek 2	906LPSOL2	SedTox_Chem					9/18/2002	9/18/2002	
Soledad Canyon Creek 2	906LPSOL2	WaterTox_Chem	9/18/2002	9/18/2002	9/18/2002	9/18/2002			
Tecolote Creek 3	906LPTEC3	SedTox_Chem					*	*	Not sampled; site was dry (9/16/2002)
Tecolote Creek 3	906LPTEC3	WaterTox_Chem	*	*	*	*			Not sampled; site was dry (9/16/2002)